DOCUMENT RESUME

ED 432 623 UD 033 038

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TITLE Application to College: A Comparison of Asian American and White High School Students.
PUB DATE 1999-04-20
NOTE 40p.; Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, April 19-23, 1999).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Asian Americans; *College Applicants; *College Bound Students; College Choice; Comparative Analysis; Ethnic Groups; *High School Students; High Schools; Higher Education; Immigrants; Socioeconomic Status; *Whites
IDENTIFIERS National Education Longitudinal Study 1988

ABSTRACT

This paper explores an important component of the high college enrollment of Asian American students: application to college while in high school. Using data from the 1988-1992 waves of the National Educational Longitudinal Study (NELS), rates of application to college are compared for Asian Americans and Whites and various Asian American ethnic groups. Using logistic and negative binomial regression models, the study examines whether the high educational expectations of Asian Americans are sufficient to explain their higher college application rates, and, if not, whether factors such as immigration generation, socioeconomic and family background characteristics and tested ability further explain these differences. Educational expectations explain a great deal of the greater propensity of Asian Americans to apply to college. In addition, the favorable socioeconomic and other background characteristics of Koreans and South Asians enable them to apply to more schools than do Whites. Chinese are more likely to apply to college and to apply to more colleges than Whites, owing in part to their high proficiency test scores. High expectations are an important determinant of college attendance, although some Asian American ethnic groups have advantages above and beyond those that affect their educational expectations. (Contains 3 tables and 47 references.) (Author/SLD)

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ED 432 623

APPLICATION TO COLLEGE:

A COMPARISON OF ASIAN AMERICAN AND WHITE HIGH SCHOOL STUDENTS*

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Presented at the annual meetings of the American Educational Research Association (AERA)

April 20, 1999

Montreal

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UD033038

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Abstract

This paper explores an important component of the high college enrollment of Asian American students: application to college while in high school. Using data from the 1988-1992 waves of the National Educational Longitudinal Study (NELS), I compare the rates of application to college of Asian Americans and whites, and of various Asian American ethnic groups. Using logistic and negative binomial regression models, I examine if Asian Americans' high educational expectations are sufficient to explain their higher college application compared to whites and, if not, whether factors such as immigration generation, socioeconomic and family background characteristics, and tested ability further explain these differences. I find that educational expectations explain a great deal of Asian Americans' greater propensity to apply to college compared to whites. In addition, the favorable socioeconomic and other background characteristics of Koreans and South Asians enable them to apply to more schools than whites do. Chinese are more likely to apply to college and apply to more colleges compared to whites due, in part, to their high proficiency test scores. High expectations are an important determinant of college attendance, though some Asian American ethnic groups have advantages above and beyond those that affect their educational expectations.

APPLICATION TO COLLEGE:

A COMPARISON OF ASIAN AMERICAN AND WHITE HIGH SCHOOL STUDENTS

Introduction

The popular press has dubbed Asians a "model minority" because of their educational and economic success in the United States. There appears to be some descriptive support for this image: Asian American children perform well on tests of math proficiency and achieve high grades in school (Fejgin 1995; Kao 1995). Asian American students enroll in college at higher rates than do white students (Hsia 1988). Asian American adults attain higher levels of education than do whites (Barringer, Takeuchi, and Xenos 1990; Hirschman and Wong 1986), and, in part because of this, Asian American households have a higher median income than those of all other racial groups in the U.S. (U.S. Bureau of the Census 1998). While they may appear to be "model," Asian Americans are also considered a minority in the U.S. Numerically, they are a minority. They are physically, culturally, and linguistically different from whites, and have faced discrimination and racial violence throughout U.S. history (Chan 1991; Takaki 1989; Xie 1993).

This term "model minority" is often used to set Asians apart from other U.S. minorities. To those who strongly believe in meritocratic educational and occupational structures, Asian Americans provide evidence that non-white groups can succeed despite the disadvantages they face as minorities and recent immigrants. Not only are Asian Americans able to achieve more education and higher incomes than members of other minority groups, but they are also more successful than the majority group, whites.

These proponents of a meritocratic society rhetorically question: If Asian Americans can do it, why not members of other minority groups?

Before that question can be reasonably posed, researchers must accomplish two tasks. First, they must systematically examine the extent to which Asians do succeed educationally and economically in the U.S. Asian Americans are not a homogeneous group. Some members of this pan-ethnic or racial group, such as Japanese, have lived in the U.S. for many generations, while many, like South and Southeast Asians, are new-comers. The ethnic groups considered Asian have very different socioeconomic profiles, immigration histories, and settlement experiences. Few researchers have carefully considered these differences among Asian American ethnic groups to see if, in fact, all members can be characterized by the term "model minority."

After assessing the extent to which Asian Americans are or are not "successful," the next step of researchers is to uncover the reasons for the relative success of some groups. In order to fairly compare Asians with other minority groups in the U.S., researchers have to examine why it is that some Asian groups have higher math test scores, higher grades, and greater college enrollment than not only other minority groups, but also whites. Only then can researchers determine whether or not other minority group members have access to those same resources.

In this paper, I will address both of these concerns by looking at one component of the greater educational success of Asian Americans. An individual's decision to apply to college is considered by some to be the most crucial component of college attendance (Manski and Wise 1983). Enrollment in college is usually conditional on a student's application to college. Manski and Wise (1983) contend that application to college is more important than admittance because students who desire to attend college are able to find institutions for which admittance criteria match their own attributes and skills.

Even though application to college can occur at any time prior to enrollment, the timing of this decision in a student's life course may be important. For example, whether

or not a student applies to college while in high school could affect his or her likelihood of enrollment in college later in life. Since graduation from high school is one transition point in a student's academic life course, it may be easier to combine graduation from high school with another transition, that of attending college. It may be more difficult to begin employment and then make a further transition to college. Thus, application to college while still in high school may make college attendance in the years following high school graduation more likely.

Using data from the 1988-1992 waves of the National Educational Longitudinal Study (NELS), I examine whether or not Asian Americans are more likely to apply to college than whites are, and, if so, why. Using both logistic and negative binomial regression models, I look at the extent to which Asian Americans' educational expectations explain their college application behavior. I choose to use whites, not other minority groups, as a comparison group, because Asian American educational and occupational success are intriguing to the public not because Asian Americans achieve more than do other minority groups but rather because they achieve more than do whites.[1]

A Crucial Component of College Attendance: Application

Hossler and Gallagher (1987) consider college enrollment to be a process made up of three important components. The first component is the formation of the expectation to attend college. The second component involves a search or information-gathering about colleges, which may or may not result in an application to college. The third component

[1] Cuban Americans often score higher than other minority group members on academic achievement tests, go to college at higher rates, and are economically more successful than other minorities. However, since Cuban Americans do not outperform whites, this group is not considered a "model minority."

is the actual decision to enroll in a particular college. Similarly, Manski and Wise (1983) view college attendance as a process. They suggest that students must first apply to college, then they are or are not accepted at one or more schools. Colleges make decisions to grant financial aid, and then students make decisions about whether or not to attend particular schools.

Both of these approaches view college enrollment not as a single decision made at one point in time but rather as a process that is composed of many decisions made by both individuals and institutions. While much work has examined students' educational expectations (Goyette and Xie 1999; Hossler and Stage 1992) and their decision to enroll in college or not (Manski and Wise 1983), little work has been done looking at the intermediate components of college attendance: gathering information about college and application to college.

The higher college enrollment of Asian Americans compared to whites has been noted for some time. Data from the survey High School and Beyond show that of 86% of the Asians who were seniors in 1980 were enrolled in college by 1982 compared to 64% of the whites (Hsia 1988). My calculations from the recently released 1994 wave of the NELS show about 88% of the Asian Americans sampled in 1988 had enrolled in college compared to 76% of whites.[2] One important, yet under-examined, component of the higher college enrollment of Asian Americans is application to college.

Explanatory Factors

There are several reasons to suspect that Asian Americans have higher college application rates than do whites. The first is that Asian American students have higher

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[2] This percentage refers to only those who did not drop out of high school.

educational expectations than whites do (Goyette and Xie 1999; Hsia 1988).[3] The famous "Wisconsin Models" of status attainment show that educational aspirations and expectations are strongly related to future educational attainment (e.g., Sewell, Haller, and Portes 1969; Sewell, Haller, and Ohlendorf 1970; Hauser, Tsai, and Sewell 1983; Looker and Pineo 1983). Asian Americans' higher educational expectations may lead them to apply to college more often than do whites.

However, educational expectations alone may not be sufficient to explain college attendance. Intentions to attend college do not necessarily translate into actual college enrollment (Carpenter and Fleishman 1987). African American students, for instance, have educational expectations that are equal to or higher than their white peers but attend college at lower rates than do whites (Xie and Goyette 1998). In this paper, I address the question: Are high educational expectations sufficient to explain differences in college application rates between Asians and whites? If not, which other factors, in addition to educational expectations, influence differences in college application rates between Asian Americans and whites? I explore three other possible explanations: immigrant generation, socioeconomic and family background characteristics, and tested ability.

Immigrant Generation

Another reason that Asian Americans may apply to college more often than whites may be due to the "optimism" of recent immigrants. Immigrants, wanting to create a better life in the U.S. than they had in their home countries, work and study hard in the U.S. and believe these efforts will be rewarded (Ogbu 1991). Presumably, much of this

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[3] The reasons for these high educational expectations are not a focus of this paper. For a comprehensive exploration of the reasons for Asian Americans' high educational expectations compared to whites', see Goyette and Xie (1999).

"immigrant optimism" is captured by including a measure of the educational expectations of recent immigrants in multivariate models.

Net of educational expectations, immigration generation may seem to be a disadvantage for many Asian American groups. As recent immigrants, many Asian Americans are neither familiar with the U.S. educational system nor aware of sources of information about applying to and financing college. Recent immigrants suffer from language difficulties that prohibit them from accessing information or that may impact their assessments of the cost of attending college and its future benefits.

On the other hand, many researchers have argued that first and second generation immigrants quickly find ways to accommodate to the requirements of the host society, especially that society's educational programs, in an attempt to gain higher income and status (Gibson 1991; Zhou and Bankston 1998). First- and second-generation immigrants use teachers, guidance counselors, principals, and other "institutional agents" as sources of information because they perceive these people as useful for their progress through the educational system. Because Asian Americans are recent, voluntary immigrants, they may trust and rely on U.S. educational institutions and people in positions of authority in school systems and other helping agencies. Further, immigrants often settle in ethnic enclaves. Involvement in immigrant, minority communities such as these may enable student's educational progress, as immigrants may share information with each other about means to gain status in the U.S. (Zhou and Bankston 1998).

The relationships of teachers, principals, and other educators with students may be influenced by their perceptions of the student, and these perceptions may be based on the student's race and immigration generation (Farkas et al. 1990; Wong 1980). African Americans and other "involuntary" minorities may suffer from stereotyping and discrimination that result in their inability to get information and resources necessary to apply to college easily. However, qualitative research and small surveys suggest that Asian Americans may not suffer these same disadvantages, because institutional agents

perceive that they are motivated, hard-workers, quiet, and obedient (Schneider and Lee 1990; Wong 1980). Similarly, teachers and other educators perceive that first-generation immigrants are more complacent, motivated, and respectful than later generations (Matute-Bianchi 1986; Suarez-Orozco 1991). These agents may reward Asian and/or first-generation immigrant students by offering information about college application procedures to these students and advocating for them within institutions.

Socioeconomic and Background Characteristics

One of the primary ways that socioeconomic background and other family background characteristics influence students is through their educational expectations. Students who have wealthy, highly educated parents may be more likely than those with poor or less-educated parents to expect to attend college. However, favorable socioeconomic and other background characteristics may also influence a student's decision to apply to college in a number of ways net of their educational expectations. High socioeconomic status may indicate that families are able to provide material resources for children to use to gather information about schools. Families with higher incomes may be able to afford college examination preparatory classes. Parents may send children to private schools that provide material resources to their students that are useful for college preparation and application.

As or more important than material resources, though, is the social capital that may result from various favorable socioeconomic and background characteristics. Accurate information about college characteristics, application and admissions procedures, and financial aid that is relevant for an individual student is particularly important for the application component of the college attendance process. This information can come from a variety of sources and relationships. Perhaps the most influential of these sources is parents (Chapman 1981). A parent who has completed

higher education him or herself can more effectively guide his or her child through the search process, ways to prepare for college (like sitting for college entrance examinations), and the application process. Educated parents may be better informed about eligibility and application for financial aid based on their own personal experiences. Highly educated parents may also be aware of more resources from which to gain these types of information and may feel less intimated doing so. Parental education is particularly important because students rely on their parents for guidance and support. Those parents who have successfully entered post-secondary education will be better able to give children relevant advice and, because of their more intimate relationships with children, this advice is more personalized to meet children's needs. Asian Indian, Japanese, Chinese, Filipino, and Korean American adults surpass whites in average educational attainment (Hsia 1988).

Another important factor influencing the acquisition of information about application procedures is family socioeconomic status. Stanton-Salazar and Dornbusch (1995) find that people seek information from those with similar SES and, further, they contend that the higher the SES of the informant, the more likely the information gained is to be reliable and relevant for attending college. Therefore, students with high family socioeconomic status are more likely to get reliable and relevant information about college applications than are those whose families have low SES.

The average family incomes of Japanese, Chinese, South Asian, and Filipino Americans are higher than that of whites. However, Lee (1994) cautions that these higher average incomes mask the higher poverty rates that many Asian American groups face compared to whites. Poverty rates are high among Chinese, Vietnamese, Laotians, Cambodians, and Hmong. The poverty rate for all Asian American groups combined is actually higher than the white poverty rate – 14% compared to 10% in 1989 (U.S. Bureau of the Census 1993).

Another indicator of access to social capital necessary to apply to college is whether a student resides in an intact family or not (McLanahan and Sandefur 1994). Those in non-intact families lose social capital in the form of information, support, and supervision from one of their parents. Asian Americans are more likely to maintain intact families than are whites (Kitano and Daniels 1988; Min 1988).

Ability Differences

Tested ability also influences educational expectations, which in turn may influence application to college. Those with higher tested ability are more likely to expect to go to college. However, tested ability differences may also affect application to college independent of educational expectations. High tested ability may be one of the ways in which teachers judge which students to advocate for and otherwise aid. Students with high ability might receive attention and support from teachers or other school administrators who help them obtain information and college applications. Perhaps for those students with less social capital from other sources (for example, those who live in poverty), social capital in this form from teachers and school officials is especially important.

The higher math proficiency of Asian Americans has been reported often (Hsia 1988; Kao 1995), but there is much debate about the sources of proficiency differences. Some suggest that differences are innate (Herrnstein and Murray 1994), but most researchers (e.g., Fischer et al. 1996) attribute variation in tested ability to differences in parents' socioeconomic status, children's access to educational resources in homes, schools, and communities, and to cultural differences between racial and ethnic groups

(Flynn 1991; Chen and Stevenson 1995; Kao 1995).[4] Regardless of the causes of ability differences, it is possible that measured differences in ability will affect the likelihood of application to college net of the child's educational expectations.

Diversity among Asian American Ethnic Groups

While it is reasonable to suspect that Asian Americans, as a whole, may apply to college at higher rates than do whites, no research to date has looked at differences in application to college by Asian American ethnic group. While Asian Americans share many experiences in the U.S., they are also a diverse group. In the following section, I provide brief descriptions of the immigration and settlement histories of the Asian American groups included in this research.

Chinese Americans

Immigration of Chinese Americans, the most populous Asian group in the United States, began in the 1840s. Most Chinese immigrants were peasant men from only a few provinces in China who found work in the United States as laborers and farm workers (Takaki 1989; Chen 1996). Chinese immigration slowed and then stopped around the turn of the century in the face of anti-Asian sentiment that culminated in the Immigration Act of 1924, which prohibited the further immigration of all Asians. The Chinese population did not increase again until 1965, when restrictions against Asian immigrants

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[4] There is also some question as to whether or not proficiency tests accurately measure ability differences. For example, proficiency tests may be culturally biased. They may measure not innate ability, but rather students' exposure to various subjects in their homes, schools, and other environments. Further, it is not evident that proficiency tests accurately predict future success in high school and college (Sacks 1997).

were repealed and preferences were established for workers with needed skills to immigrate to the United States (Edmonston and Passel 1994).

Filipinos

Filipinos are the second most populous Asian American ethnic group in the United States (Lee and Edmonston 1994). Most Filipino immigrants originally came to work on plantations in Hawaii. Because of past contact with both Spain as a colony and with the United States as a territory, Filipinos were more easily able to assimilate into U.S. society than other Asian ethnic groups (Chen 1996).

Japanese

Although many Japanese immigrated between 1880-1920 as plantation and other agricultural workers, this group is now one of the most educationally and occupationally successful Asian American ethnic groups. Many Japanese American families have been in the United States for three or more generations and are structurally well-assimilated.

Koreans

Few Koreans immigrated to the United States prior to 1965. Among those who did were farmers, laborers, and students (Takaki 1989; Chen 1996). After 1965, highly educated, professional Koreans immigrated to the U.S. Despite this, a portion of the Korean population still occupies middleman economic niches like shop-keepers and other small business owners and is concentrated in enclaves with higher than average poverty rates (Lee 1994).

Southeast Asians

This group is an aggregate of several smaller, diverse groups of Asians from countries like Vietnam, Laos, Cambodia, and Thailand. Apart from representing several nationalities, this group also includes a variety of smaller ethnic groups like the Vietnamese, Chinese-Vietnamese,[5] Lao, Khmer, and Hmong.[6] Although members of this group have many distinct heritages and histories, they share a common experience of immigrating as political refugees during the 1970s and 1980s. Southeast Asian children and their parents came to the U.S. to escape political and economic persecution in their home countries (Tollefson 1989). Forced to spend time in refugee and re-education camps before immigrating to the U.S., many children of refugees lost years of schooling.

South Asians

South Asians, as a group, are largely composed of Asian Indians. The majority of Asian Indians came to the U.S. after the 1965 changes in immigration law encouraging the immigration of professionals. From 1969 to 1971, approximately 90% of Asian Indian immigrants were professionals with post-secondary education (Wong and Hirschman 1983).

Because of the various experiences of each Asian American ethnic group, the educational outcomes of Asian Americans may differ substantially. Treating Asian

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[5] These are Chinese who immigrated to and lived in Vietnam for many years.

[6] It is difficult to treat these diverse groups in a single category. Lao and Khmer students, for example, may perform less well in school than Vietnamese and Hmong students. However, due to some similarities among them and the small sample sizes of individual ethnic groups, I treat them as a single category in analyses.

Americans as a single category may mask important variation in outcomes. Further, explanations for each group's success compared to whites may also differ by ethnicity. Research to date treats Asian Americans' success as if it is a function of their shared characteristics. However, it is possible that some factors may be more relevant for explaining the success of one group and less relevant for others. For example, socioeconomic factors may be important for explaining the educational outcomes of Japanese and South Asians but not for Southeast Asians. In this research, I disaggregate Asian Americans into ethnic groups in order to explore diversity in outcomes and explanations for those outcomes.

Data and Methods

For this study, I use the 1988 through 1992 waves of data from the National Educational Longitudinal Study (NELS) collected for the National Center for Education Statistics (NCES) by the National Opinion Research Center. NELS surveyed a sample of 24,599 United States eighth-graders in 1988. These same respondents were re-interviewed in three follow-ups: 1990, 1992, and 1994. Questions were asked of the sampled students and their parents, teachers, and school principals. NELS over-sampled Asian Americans, resulting in over 1,000 in the base-year survey. This over-sampling along with detailed information on Asian ethnicity is important to this research because it enables cross-ethnic comparisons within the Asian American subpopulation. In this research, I limit my sample to Asian American and white students only and use dependent variables drawn from the second follow-up study; that is, the third or 1992 wave of the sample. The resulting sample size is 11,105.

Similar to other longitudinal studies, the NELS panel experiences attrition in follow-up surveys. However, it is likely that attrition introduces a conservative bias to

the results. Whites are more likely to drop out of high school than Asian Americans are, and dropouts are likely to have a low probability of applying to college. Therefore, it is likely that I under-estimate the gap in college application between Asian Americans and whites.[7]

Dependent and independent variables are presented in Tables 1 and 2. Descriptions of them are as follows:

College Application: The dependent variable, application to college, is measured in two different ways in this research. I measure college application dichotomously when using logistic regression. Those who applied to one or more colleges by 1992 are coded "1;" those who did not are coded "0." For negative binomial models, I use the count of applications as the dependent variable.

Race/Ethnicity: Race/ethnicity, the key independent variable, is also measured in two ways. In models which I term "homogeneous," I group Asian Americans in a single category coded "1" and compare that group to whites (coded "0"). In models named "heterogeneous," I disaggregate Asian Americans into separate ethnic groups. There are 189 Chinese, 174 Filipinos, 52 Japanese, 123 Koreans, 146 Southeast Asians, and 83 South Asians included in analyses.

Educational Expectations: On the NELS questionnaire, students are asked "As things stand now, how far in school do you think you will get?" Students could answer "less than high school," "high school graduation," "some college," "college graduate,"

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[7] NELS excluded children who had extreme difficulty speaking English, and this may introduce bias into the results. Children with less proficiency in English may be less likely to apply to college for a number of reasons. This may cause the college application

"masters or professional degree," or "doctorate." Categories were coded into years of education expected such that less than high school=11, high school graduate=12, etc. Educational expectations are measured at the 10th grade or 1990 follow-up survey.

Immigrant Generation: Students are considered first generation if they were not born in the U.S., second generation if they were born in the U.S. but one of their parents was not, and third generation or higher if both they and both parents were born in the U.S. This information was taken from parents' questionnaires during the base year of the survey. Those students whose parents did not answer questionnaires are coded as "missing."

Socioeconomic and Background Factors: Various socioeconomic and background characteristics are included in multivariate models. First, father's education and mother's education are included with three categories: less than high school, high school, and college. Second, I include a composite index measuring socioeconomic status (SES) that was provided by the National Center for Education Statistics, based on the prestige of both mother's and father's occupations (scored with the Duncan SEI scale), family income, and both parents' education with each component equally weighted. The SES index is standardized such that it has a mean of 0 and a standard deviation of 1 for the whole sample (National Center for Education Statistics 1990). Family structure and composition are considered with two variables: whether the child resides in an "intact" or "non-intact" family, and the number of siblings. Two characteristics of children's schools are also included as background characteristics. The first pertains to the type of school a child attends. A dummy variable represents those children who go to public schools in contrast to those attending private schools. The second measures school

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rates of some groups dominated by first-generation Asian Americans, like Southeast

urbanicity, categorized such that those who attend rural schools are compared to those who attend urban or suburban schools.

Academic Ability: Two sets of variables are used to gauge children's ability. The first measures whether or not a child has been held back; that is, not passed or made to repeat a grade in school. The second set of variables are proficiency test scores standardized on a scale from 0 to 100 (with a mean of 50 and a standard deviation of 10 for the whole NELS sample) in three subjects: reading, math, and science.

The analysis portion of this paper is presented in three parts. First, I present descriptive findings for the dependent and independent variables by race and ethnicity. Second, I provide results from a logistic regression model using whether or not the student had applied to college by 1992 as the dependent variable. Finally, I present negative binomial regression models using the count of the number of colleges to which students applied as the dependent variable.

Results

Table 1 presents application rates first by Asian American race and then disaggregated by ethnicity. These results are weighted according to the panel weights that NELS provides.

Table 1 about here.

Table 1 shows that Asian Americans are more likely than whites to apply to college. About 78% of Asian Americans in the sample had applied to college by 1992, compared to about 67% of whites. However, when Asian Americans are disaggregated by ethnicity, Table 1 also shows that not all Asian American students are more likely to apply to college than whites. Filipinos apply to college less than do whites. Over a third of Filipino high school students report applying to no colleges at the time of the second

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Asians and Koreans, to be over-estimated in this research.

follow-up survey. This is compared to about a third of whites. Other Asian American groups are more likely to apply to college than whites are. About 76% of Southeast Asians report applying to one or more colleges during high school. More than 83% of Koreans and 88% of Chinese say they applied to one or more college and almost 92% South Asians report doing so.

Of those that report applying to college, Asian Americans, with the exception of Filipinos, apply to more schools than do whites. Chinese, Japanese, Koreans, and South Asians apply to more schools than do whites with about 30%, 17%, 29%, and 47%, respectively, applying to 5 or more schools compared to 8.8% of whites. Southeast Asians, are as likely as whites to apply to 5 or more schools. We can see from this table that Asian Americans, with the exception of Filipinos and Southeast Asians, are far less likely than whites to apply to only one college. Fewer than 19% of Chinese, Japanese, Koreans, and South Asians apply to only one school, compared to over a quarter of whites, Filipinos, and Southeast Asians.

Table 2 presents distributions of Asian American respondents across the independent variables. Again, when looking only at the column, "Asian American," it appears that overall this group has higher expectations, more favorable socioeconomic and other background characteristics, and higher tested ability than do whites.[8] However, when we disaggregate Asian Americans into separate ethnic groups, there appears to be a great deal of variation in the independent variables.[9] For example, the proportion of immigrants of various generations differs quite substantially across categories. More than 53% of the Japanese in this sample report being third or higher generation, while less than 1% of Southeast Asians are third generation. Although all groups expect to

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[8] However, Asian Americans have slightly larger families than do whites.

[9] An exception to this is rural or urban residence. Asian Americans of all ethnic groups are much less likely to live in rural areas than are whites.

achieve more education than whites' 16 years, there is also a great deal of variation across ethnic groups in educational expectations. Filipinos and Southeast Asians expect only slightly more than 16 years while Chinese, Japanese, Koreans, and South Asian expect 17 and 18 years of education.

While Asian Americans, as a whole, have more favorable socioeconomic and other background characteristics, there are a few notable exceptions. Southeast Asian parents have less education than do whites, despite the fact that overall, Asian American parents have more education than whites. The SES of Southeast Asians is also far lower than that of whites, while the SES of other groups is either equal to or slightly higher than that of whites. While most Asian groups average about two or fewer children, Chinese and Southeast Asians have larger families than whites, with close to three children on average.

Finally, there is also a great deal of variation in grade advancement and tested ability across ethnic groups. Southeast Asians are more likely to be held back a grade in school than whites are. More than 12% report being held back compared to about 11% of whites. Filipinos, Japanese, and Southeast Asians tend to score slightly lower than whites on tests of reading ability with scores of 52.2, 52.7, and 52.4, respectively, compared to whites' 52.9, and these groups score similar to whites on tests of science ability.

The descriptive statistics show that indeed there is much variation among Asian American ethnic groups. In the logistic and negative binomial regression models that follow, I test this proposition statistically. I compare models in which all Asian Americans are included in only one category (homogeneous) with models in which Asian Americans are disaggregated into ethnic groups (heterogeneous) to see which fit better. Since, as I will show, heterogeneous models fit the data better, in Tables 3 and 4, I only present results from these models. To further explore diversity among Asian Americans, I also consider how well the above factors explain the college application rates of each Asian American ethnic group.

Logistic Regression Results

In Table 3, I present odds ratios calculated from the coefficients of logistic regression models to test whether the educational expectations of Asian Americans are sufficient to explain their higher rates of college application (among all groups except Filipinos). To do this, I compare the odds ratios of the variables for race/ethnicity across Models 1 and 2. The first model measures the "raw" or bivariate differences across ethnic groups. The first column of Table 3 shows that, while all Asian American ethnic groups except Filipinos have higher rates of application to college than do whites, this difference is only significant for Chinese, Koreans, and South Asians. The results from this model indicate that Chinese students are almost four times as likely as whites to apply to college. Koreans are about two and a half times as likely as whites to apply to college, and South Asians are about five and a half times as likely. Though not significant, Southeast Asians are about one and a half times as likely as whites to apply to college.

Table 3 about here.

In the next model, Model 2, I add variables measuring students' expectations, measured continuously in years during the tenth grade, to see how much of the difference between Asian American ethnic groups and whites educational expectations explain. Educational expectations account for a large portion of the higher college application rates of most Asian American groups compared to whites. This is especially true for Koreans and South Asians. Controlling for educational expectations, Koreans are only slightly and not significantly more likely than whites to apply to college (about 1.4 times as likely). South Asians are still almost three times as likely as whites to apply to college, but the difference from whites is only significant at the .10 level of confidence. The difference between Chinese and whites remains large and significant in this model, indicating that the educational expectations of Chinese do not explain much of their higher rates of application to college compared to whites'.

Model 3 includes the immigration generation of students. Results from this model show that, regardless of their generally lower educational expectations, third-generation students apply to college significantly less than first-generation students. They are about half as likely as first-generation immigrants to apply to college. This finding is particularly intriguing. Researchers often attribute the success of first-generation immigrants to "immigrant optimism" much of which would be expressed in their higher educational expectations. This result suggests that first-generation students may also be more able to translate their expectations into college applications than third-generation students are.[10]

When immigration generation is added to the model, most of the differences between Asian American ethnic groups and whites completely disappear. The exceptions to this are the differences between Chinese and whites, and between South Asians and whites. Both Chinese and South Asians are still almost two times as likely as whites to apply to college, though this difference is not significant for South Asians and only marginally significant for Chinese students.

In the next model, Model 4, I add socioeconomic and other background characteristics to assess the extent to which these can explain differences between Chinese and South Asians, and whites net of the educational expectations of students. Many of these variables have significant effects independent of their effects through educational expectations. Socioeconomic status net of parents' education, as measured by the SES Index provided by NELS, appears to have a small, but significant effect on students' college application. Both father's and mother's education have strong, positive, and significant effects above and beyond their child's educational expectations. Family

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[10] I also tested the interactions between Asian American race and immigrant generation, and ethnicity and immigration generation, but the inclusion of these terms did not improve the model significantly.

structure maintains a negative, significant effect, as does number of siblings, and attending a public, as opposed to private, school. Rural residence is positively, but marginally significantly associated with application to college net of educational expectations.[11]

Favorable socioeconomic and other background characteristics explain much of the remaining variation between South Asians and whites, but none of the variation between Chinese and whites. In fact, when socioeconomic and other background variables are included in multivariate models, the difference between Chinese and white students' rates of college application again achieves significance at the .05 level of confidence. It is notable that, in this model, the likelihood of applying to college for Filipinos is significantly less than that of whites at the .01 level of confidence. Filipinos appear to experience disadvantages that are suppressed by their comparatively high socioeconomic backgrounds. However, I cannot even speculate as to the factors that account for these disadvantages.

In Model 5, I add tested ability differences. Ability scores appear to have some effect on application to college net of students' educational expectations and net of socioeconomic and other background differences. Tested ability differences explain some of the variation between Chinese and white students, again reducing the significance of the coefficient representing differences between Chinese and whites. Ability differences, it seems, further enable Chinese students' application to college even controlling for the influence of ability on educational expectations. Despite this reduction, Chinese students are still almost two times as likely as whites to apply to college, and this difference remains significant, though only at the .10 level of

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[11] Dummy variables representing those who live in California and those who live in New York State were added to the model as controls, but they did not further reduce differences between Asian American ethnic groups and whites. Dummy variables for region of the country also did not reduce differences.

confidence. Tested ability explains none of the remaining positive difference between South Asians and whites; rather, the addition of tested ability increases this difference slightly.

The last four lines of Table 3 present results from χ^2 tests that compare models in which Asian American ethnic groups are treated homogeneously with those that treat them as heterogeneous, separate groups. The χ^2 statistic for heterogeneous Asian American ethnic groups is the χ^2 statistic for the model presented in the table. The χ^2 statistic for homogeneous Asian American ethnic groups is from a model that uses one dummy variable ("Asian") to describe all ethnic groups. Results comparing the χ^2 statistics from both of these models show that disaggregating Asian Americans into separate ethnic groups significantly improves the fit of the models. As expected, the magnitude of the difference in χ^2 generally decreases with the addition of the explanatory variables, but even when students' expectations, immigration generation, socioeconomic and background characteristics and tested ability are accounted for, differences in application rates across Asian American ethnic groups' do not disappear.

Negative Binomial Model Results

The models presented in Table 4 are negative binomial models with number of colleges applied to as the dependent variable. Ordinal responses were coded so that "none" is 0, "one" is 1, "2 to 4" is coded as 3, and "5 or more" is coded 5. Negative binomial models are the most appropriate models for this specification of the dependent variable because application to college follows a Poisson process, defined as a count of repeatable events within a certain, fixed interval (Allison and Long 1990). The Poisson process also allows for zero applications, which least squares regression does not estimate well. Coefficients from Poisson models such as these are easily interpreted: the exponential of the β

coefficients for each of the race/ethnicity variables is the ratio (R) of number of applications of that group compared to whites. The β coefficient is:

$$\beta=\log(R)$$

I favor the negative binomial model over a simple Poisson model because the Poisson model is based on the assumption that the mean of college application equals its variance. The negative binomial model does not restrict the variance in this way (Xie and Shauman 1998). A χ^2 test comparing the Poisson and negative binomial models shows that the negative binomial model is a significant increase over the Poisson model (χ^2 difference=1600.05 for 1 degree of freedom).

The pattern of results from the negative binomial models is similar to that found in the logistic regressions in Table 3. Students of all Asian American ethnic groups, except Filipinos, apply to more colleges than do whites. For Chinese, Koreans, and South Asians, these differences are significant at the .01 level of confidence. In fact, Chinese and South Asians apply to approximately twice as many schools as do whites. Students' expectations play a key role in explaining Asian Americans' greater number of applications, especially among Koreans and South Asians.

Table 4 about here.

Unlike in the logistic models, differences between South Asians and whites, and Koreans and whites, as well as differences between Chinese and whites remain significant after including students' expectations in multivariate models. In Model 3, immigrant generation is included. It appears from this model that third-generation students apply to significantly fewer colleges than do first-generation students. Immigration generation reduces all positive differences between Asian American ethnic groups and whites. Differences between Koreans and whites, and South Asians and whites are no longer significant in this model. In Model 4, adding socioeconomic and family background characteristics slightly reduces the differences between Koreans and whites, and South Asians and whites. However, the positive difference for Chinese not

only remains significant, but also increases slightly. As in the previous logistic regression models, Filipinos apply to significantly fewer colleges than whites do, after controlling for immigration generation and socioeconomic background. Ability plays a small role in reducing the difference in number of college applications between Chinese and whites, but the addition of this variable does not explain any of the difference between South Asians and whites. Finally, similar to the logistic regression models, the heterogeneous models significantly improve over models that treat Asian Americans as a homogeneous group. This is indicated by the χ^2 tests of the last four lines of Table 4.

When comparing the logistic regression results with those from the negative binomial models, it appears that students' expectations explain differences in whether or not students apply to college better than they explain differences in the number of colleges to which students apply. While students' expectations, socioeconomic characteristics, and tested ability explain nearly all of the significant differences between Asian American ethnic groups' and whites' propensity to apply to college, these same factors do no account for the higher number of colleges Chinese apply to compared to whites.

Conclusion

This research began with two goals. The first was to assess the "success" of various Asian American ethnic groups compared to whites. I find that, in fact, not all Asian American ethnic groups report higher college application rates than do whites. Filipinos apply to college at lower rates than do whites, and this difference becomes significant once factors such as socioeconomic background and immigration generation are added to multivariate models. I have no explanations for why Filipino students apply to college at lower rates than do whites, largely because Filipinos, characterized as Asian Americans and thus "model minorities," have not been the subject of research on educational

outcomes. Clearly, the "model minority" stereotype masks differences among Asian American ethnic groups that warrant careful examination.

The second goal of this research was to provide some explanations for the "success" of those Asian American ethnic groups who reported higher rates of application to college than did whites. I considered students' expectations, immigration generation, socioeconomic and other background characteristics, and tested ability scores. It is important to note that there are differences in the explanatory power of these factors across Asian American ethnic groups. Educational expectations do not explain all of the significant differences in the likelihood of applying to college between whites and Chinese, and a large and positive, though not significant, coefficient representing South Asians remains. Further, expectations do not completely explain differences in the numbers of colleges to which Koreans, Chinese, and South Asians, and whites apply. Socioeconomic and other background factors explain a large portion of the remaining positive differences in application behavior between South Asians and whites, and Koreans and whites, but none of the remaining differences between Chinese and whites. Finally, ability differences (net of other factors) are only relevant explanations for the higher likelihood of Chinese to apply to college than whites, and do not seem to affect differences between whites and other Asian American ethnic groups. These results provide further evidence that Asian Americans cannot be treated as a single group with shared characteristics that account for their success. Different factors underlie the higher college application rates of various Asian American ethnic groups.

Beyond Educational Expectations

One commonality across Asian American ethnic groups (except Filipinos) is that educational expectations explain a great deal of their greater propensity to apply to college compared to whites. However, some Asian American ethnic groups have

advantages above and beyond those that affect their educational expectations. The favorable socioeconomic and other background characteristics of Koreans and South Asians enable them to apply to more schools than whites do. Chinese are more likely to apply to college and apply to more colleges compared to whites due, in part, to their high proficiency test scores. Immigrant generation, socioeconomic background and other family characteristics, and tested ability differences have some independent effects on the likelihood of applying to college and the number of colleges to which students apply. How might these independent effects be interpreted?

One possible interpretation of the independent effects of immigration generation, socioeconomic and family background characteristics, and tested ability relates to their influence on students' ease and success of gathering information about college. Net of a student's educational expectation, these factors may indicate differences in access to material resources and social capital that enable students to obtain reliable information easily. Access to material resources and social capital may ease the process of applying to college for students.

Debate about the reasons why African Americans are unable to translate their generally high educational expectations compared to whites into equally high college attendance has suggested that this incongruity may be due to African Americans' lack of reliable information about colleges and application processes. Lack of information may be due to less material resources and social capital that is available to the average African American student compared to the average white student. This debate suggests that both high educational expectations and access to material resources and social capital are necessary to account for college attendance.

These findings suggest that, while educational expectations play a major role in explaining differences in the likelihood of applying to college between Asian Americans and whites, access to material resources and social capital may ease the process of applying to college, even above and beyond the student's expectation to attend. In this

respect, high expectations are an important determinant of college attendance, but also, for Koreans, South Asians, and Chinese especially, material resources and social capital may also play a significant role. Before other minorities can be fairly compared to Asian Americans with the rhetorical question "If Asian Americans can succeed, why not other minority groups?", we must explore the extent to which other groups have access to these same resources.

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Table 1: Percent Applying to College by Race/Ethnicity

	White	Asian American	Chinese	Filipino	Japanese	Korean	Southeast Asian	South Asian
Application to college								
None	33.4	21.7	11.5	34.5	30.7	16.6	24.3	8.3
One college	26.7	19.5	11.9	26.4	18.6	17.8	26.4	10.1
2 to 4 colleges	31.0	37.6	46.4	31.6	33.9	36.5	40.6	34.9
5 or more colleges	8.8	21.2	30.2	7.6	16.9	29.1	8.8	46.8
One or more colleges	66.6	78.3	88.5	65.6	69.4	83.4	75.7	91.7
N	(10,338)	(767)	(189)	(174)	(52)	(123)	(146)	(83)

Note: Descriptive statistics are weighted, with unweighted sample sizes reported.

Table 2: Descriptive Statistics by Race/Ethnicity

	White	Asian American	Chinese	Filipino	Japanese	Korean	Southeast Asian	South Asian
Student's Expectations	16.0	17.0	17.0	16.2	17.3	17.8	16.5	18.4
(Std. dev.)	(2.3)	(2.4)	(2.3)	(2.4)	(1.9)	(2.1)	(2.6)	(2.0)
Missing	1.0	0.9	1.1	1.0	0.0	0.0	0.7	2.1
Child's Generation								
First	0.7	44.9	48.9	33.0	14.5	36.7	78.8	44.1
Second	4.5	33.2	35.9	39.8	27.0	41.1	6.1	43.3
Third	89.5	8.5	7.9	8.6	53.3	1.1	0.4	5.8
Missing	5.3	13.5	7.3	18.6	5.2	21.2	14.7	6.8
Father's Education								
Less than high school	8.7	7.2	9.2	9.2	7.1	3.6	9.1	0.0
High school graduate	48.1	31.8	34.7	41.1	31.9	33.6	26.9	9.5
College graduate	31.6	42.1	40.9	33.9	58.2	47.0	29.5	67.2
Missing	11.6	18.9	15.2	15.8	2.9	15.8	34.4	23.3
Mother's Education								
Less than high school	8.3	13.6	27.4	8.3	10.7	7.5	19.2	1.2
High school graduate	57.7	28.5	21.6	36.5	41.5	31.4	26.6	15.3
College graduate	25.0	33.3	31.7	34.1	39.5	37.7	12.2	55.1
Missing	9.0	24.6	19.4	21.2	8.3	23.5	42.0	28.4
SES Index	0.2	0.3	0.2	0.3	0.5	0.5	-0.3	0.9
(Std. dev.)	(0.7)	(0.8)	(0.9)	(0.7)	(0.6)	(0.7)	(0.8)	(0.6)
Missing	13.1	15.9	11.6	13.7	6.0	23.1	21.2	18.4
Family Structure								
Intact	58.9	68.0	77.8	64.9	77.6	53.8	62.2	75.6
Non-intact	27.4	15.1	10.2	18.7	16.5	22.5	15.9	6.0
Missing	13.7	16.9	12.0	16.3	6.0	23.7	22.0	18.4
Number of Siblings	2.2	2.3	2.6	2.2	1.9	1.9	3.2	1.5
(Std. dev.)	(1.6)	(1.7)	(2.0)	(1.6)	(1.5)	(1.4)	(1.9)	(1.0)
Missing	17.7	14.5	10.8	21.0	7.2	8.0	20.7	8.1
School Type								
Public	86.8	85.0	91.3	72.9	90.0	88.6	90.2	88.1
Private	10.7	14.4	8.3	25.9	10.0	9.9	9.8	12.0
Missing	2.5	0.6	0.4	1.2	0.0	1.4	0.0	0.0
Urbanicity								
Urban or suburban	64.6	90.7	93.3	90.4	90.3	85.7	94.1	87.5
Rural	33.0	8.7	6.4	8.4	9.7	12.9	5.9	12.5
Missing	2.5	0.6	0.4	1.2	0.0	1.4	0.0	0.0
Ever Held Back								
No	85.6	84.6	88.7	85.5	80.0	81.4	79.0	88.7
Yes	10.8	7.3	6.7	7.8	7.9	7.5	12.3	0.0
Missing	3.6	8.1	4.6	6.7	12.1	11.2	8.8	11.3
Standardized Reading Score	52.9	54.0	53.0	52.2	52.7	56.8	52.4	60.0
(Std. Dev.)	(9.5)	(9.6)	(10.1)	(9.3)	(8.6)	(8.3)	(9.9)	(7.5)
Missing	4.4	6.0	2.9	6.5	9.3	5.6	7.1	7.6
Standardized Math Score	53.2	57.2	59.5	54.1	55.9	60.0	56.0	59.4
(Std. Dev.)	(9.4)	(9.3)	(8.8)	(9.9)	(9.0)	(8.7)	(9.0)	(7.5)
Missing	4.5	6.3	3.8	6.5	9.3	5.6	7.8	7.6
Standardized Science Score	53.2	54.5	54.1	52.9	53.7	58.5	53.1	57.0
(Std. Dev.)	(9.5)	(9.7)	(10.5)	(9.3)	(8.7)	(8.8)	(10.0)	(8.0)
Missing	4.6	6.9	4.9	7.8	9.3	5.6	7.8	7.6
N	(10,338)	(767)	(189)	(174)	(52)	(123)	(146)	(83)

Note: Descriptive statistics are weighted, with unweighted sample sizes reported.

Table 3: Odds Ratios from Logistic Regression Models Predicting College Application, Second Follow-up of NELS

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.99**	0.01**	0.01**	0.05**	0.01**
Race (White=excluded)					
Chinese	3.87**	3.18**	1.96[t]	2.19*	1.91[t]
Filipino	0.96	0.89	0.62*	0.53**	0.55*
Japanese	1.14	0.69	0.58	0.48	0.56
Korean	2.53**	1.39	0.95	0.95	0.89
Southeast Asian	1.57	1.43	0.82	0.93	0.82
South Asian	5.57**	2.75[t]	1.85	1.56	1.70
Student's Expectations[b]		1.45**	1.44**	1.33**	1.25**
Child's Generation (First=excluded)					
Second			0.74	0.65[t]	0.55*
Third			0.47**	0.42**	0.38**
SES Index				1.02*	1.02*
Father's Education (Less than high school=excluded)					
High school graduate				1.36**	1.27**
College Graduate				2.13**	1.82**
Mother's Education (Less than high school=excluded)					
High school graduate				1.43**	1.31**
College Graduate				2.32**	2.01**
Family Structure (Intact=excluded)					
Non-intact				0.71**	0.72**
Number of Siblings				0.95**	0.95**
School Type (Private=excluded)					
Public				0.58**	0.59**
School Urbanicity (Urban or suburban=excluded)					
Rural				1.10[t]	1.12*
Ever Held Back (No=excluded)[a]					
Yes					0.82**
Standardized Reading Score[a]					1.02**
Standardized Math Score[a]					1.04**
Standardized Science Score[a]					0.99**
χ^2 *for Heterogeneous Asian-American Ethnic Groups*	55.60	1480.89	1512.84	2079.68	2442.46
df	6	8	11	27	35
χ^2 *for Homogeneous Asian-American Ethnic Groups*	28.59	1464.53	1498.26	2060.84	2427.58
χ^2 *Difference between Heterogeneous and Homogeneous Models* ($\Delta df=5$)	27.01**	16.36**	14.58*	18.84**	14.88*

Note: [t] $p < .10$ * $p < 0.05$ ** $p < 0.01$. Sample size is 11,105. The models also include dummy variables denoting missing values for students' expectations, children's generation, father's education, mother's education, family structure, number of siblings, school type, school urbanicity, ever held back, standardized reading score, standardized math score, and standardized science score.

[a] These variables were measured during the 8th grade.
[b] These variables were measured during the 10th grade.

Table 4: Ratios from the Estimated Coefficients of Negative Binomial Models of Number of College Applications, Second Follow-up of NELS

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.64**	0.10**	0.14**	0.23**	0.14**
Race (White=excluded)					
Chinese	1.84**	1.60**	1.28**	1.31**	1.24**
Filipino	0.97	0.94	0.76**	0.72**	0.74**
Japanese	1.25	1.02	0.90	0.84	0.90
Korean	1.67**	1.26*	1.03	1.02	1.00
Southeast Asian	1.17	1.06	0.86	0.97	0.95
South Asian	2.13**	1.48**	1.16	1.06	1.09
Student's Expectations[b]		1.19**	1.18**	1.13**	1.10**
Child's Generation (First=excluded)					
Second			1.06	1.02	0.98
Third			0.77**	0.79**	0.78**
SES Index				1.01*	1.01**
Father's Education (Less than high school=excluded)					
High school graduate				1.20**	1.16**
College Graduate				1.51**	1.39**
Mother's Education (Less than high school=excluded)					
High school graduate				1.29**	1.22**
College Graduate				1.51**	1.37**
Family Structure (Intact=excluded)					
Non-intact				0.86**	0.88**
Number of Siblings				0.98**	0.98**
School Type (Private=excluded)					
Public				0.83**	0.82**
School Urbanicity (Urban or suburban=excluded)					
Rural				0.89**	0.90**
Ever Held Back (No=excluded)[a]					
Yes					0.90**
Standardized Reading Score[a]					1.01**
Standardized Math Score[a]					1.02**
Standardized Science Score[a]					1.00*
χ^2 *for Heterogeneous Asian-American Ethnic Groups*	100.27	1678.47	1754.00	2708.79	3162.24
df	6	8	11	27	35
χ^2 *for Homogeneous Asian-American Ethnic Groups*	61.18	1653.36	1731.30	2679.63	3138.03
χ^2 *Difference between Heterogeneous and Homogeneous Models (Δdf=5)*	39.09**	25.11**	22.70**	29.16**	24.21**

Note: [t] p <.10 * p < 0.05 ** p < 0.01. Sample size is 11,105. The models also include dummy variables denoting missing values for students' expectations, children's generation, father's education, mother's education, family structure, number of siblings, school type, school urbanicity, ever held back, standardized reading score, standardized math score, and standardized science score.

[a] These variables were measured during the 8th grade.
[b] These variables were measured during the 10th grade.